MONTHLY WEATHER REVIEW.

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INTRODUCTION.

The MONTHLY WEATHER REVIEW for April, 1905, is based on data from about 3583 stations, classified as follows:

Weather Bureau stations, regular, telegraph, and mail, 176; West Indian Service, cable and mail, 4; River and Flood Service, regular 52, special river and rainfall, 363, special rainfall only, 98; cooperative observers, domestic and foreign, 2565; total Weather Bureau Service, 3258; Canadian Meteorological Service, by telegraph and mail, 33; Meteorological Service of the Azores, by cable, 2; Meteorological Office, London, by cable, 8; Mexican Telegraph Company, by cable, 3; Army Post Hospital reports, 18; United States Life-Saving Service, 9; Southern Pacific Company, 96; Hawaiian Meteorological Service, 1; Jamaica Weather Service, 130; Costa Rican Meteorological Service, 25. Total, 3583.

Special acknowledgment is made of the hearty cooperation of Prof. R. F. Stupart, Director of the Meteorological Service of the Dominion of Canada; Señor Manuel E. Pastrana, Director of the Central Meteorological and Magnetic Observatory of Mexico; Camilo A. Gonzales, Director-General of Mexican Telegraphs; Capt. S. I. Kimball, Superintendent of the United States Life-Saving Service; Lieut. Commander H. M. Hodges, Hydrographer, United States Navy; H. Pittier, Director of the Physico-Geographic Institute, San José, Costa Rica; Commandant Francisco S. Chaves, Director of the Meteorological Service of the Azores, Ponta Delgada, St. Michaels, Azores; W. N. Shaw, Esq., Secretary, Meteorological Office, London; H. H. Cousins, Chemist, in charge of the Jamaica Weather Office; and Señor Enrique A. Del Monte, Director of the Meteorological Service of the Republic of Cuba.

Attention is called to the fact that at regular Weather Bureau stations all data intended for the Central Office at Washington are recorded on seventy-fifth meridian or eastern standard time, except that hourly records of wind velocity and direction, temperature, and sunshine are entered on the respective local standards of time. As far as practicable, only the seventy-fifth meridian standard of time, which is exactly five hours behind Greenwich time, is used in the text of the REVIEW. The standards used by the public in the United States and Canada and by the cooperative observers are believed to conform generally to the modern international system of standard meridians, one hour apart, beginning with Greenwich. The Hawaiian standard meridian is 157° 30′, or $10^h\ 30^m$ west of Greenwich. The Costa Rican standard meridian is that of San José, $5^h\ 36^m$ west of Greenwich.

Barometric pressures, whether "station pressures" or "sea-level pressures," are now reduced to standard gravity, so that they express pressure in a standard system of absolute measures.

Since December, 1904, the Weather Bureau has received an average of about 1700 reports from as many observers and vessels, giving international simultaneous ovservations over the Atlantic and Pacific oceans at 12 noon, Greenwich time, or 7 a. m., seventy-fifth meridian time. These are charted, and, with the corresponding land observations, will form the framework for daily weather charts of the globe.

In conformity with Instructions No. 43, March 29, 1905, the designation "voluntary", as applied to the class of observers performing services under the direction of the Weather Bureau without a stated compensation in money, is hereby discontinued, and the designation "cooperative" will be used instead in all official publications and correspondence.

FORECASTS AND WARNINGS.

By Prof. E. B. GARRIOTT, in charge of Forecast Division.

Unusually severe weather prevailed along the transatlantic steamer routes during the first half of April. During the second decade of the month barometric pressure continued low over the eastern Atlantic, and a disturbance moved from the ocean west of the British Isles southeastward over France. Following this disturbance an area of high barometer settled slowly southward over the British Isles and adjacent ocean. After the 24th pressures continued generally low over the British coasts. In the vicinity of the Azores the barometer was low until the 12th, and continued high from that date until the close of the month. Over the western Atlantic low and fluctuating barometric pressure attended the passage of a number of disturbances from the American Continent.

In the United States a remarkable succession of barometric depressions caused exceptionally heavy rains in the Southwest, and during the third decade of the month severe storms of rain and snow in contiguous mountain districts resulted in floods in parts of Arizona and western New Mexico. The eastward advance of depressions from the West and Southwest was attended by extensive rain areas, and followed by frost-producing cool waves of unusual seasonal severity. Destructive winds that attended the depressions were confined principally to squalls that accompanied local storms.

The month opened with heavy rain over the middle and southern Rocky Mountain districts and the Great Plains and heavy snow in the mountains of Wyoming, Colorado, and northern New Mexico. Extending eastward the rain area covered the central valleys and the Lake region on the 2d and 3d, and reached the Atlantic coast on the 4th, where rain continued during the 5th. On the 6th snow fell in parts of New England and the Middle Atlantic States. The precipitation of this period attended low areas I, II, and IV, the tracks of which are traced on Chart II. On the 5th violent local storms occurred in Iredell and Rowan counties, N. C., during the passage of low area IV over that State.

Following the passage of the low areas referred to the temperature fell, and heavy frost occurred on the 7th in the Southern States.

From the 4th to the 10th a disturbance of moderate strength, low area III, crossed the continent, its path being confined almost entirely to the British Northwest Territory and Canada. From the 9th to 11th a disturbance, low area VI, advanced from Wyoming to the middle Atlantic and south New England coasts, attended by an extensive rain area and by thunderstorms in the central valleys and Middle Atlantic States.

On the morning of the 11th two disturbances appeared, one,